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DEVICE FOR MIXING LIQUIDS IN VARIABLE PROPORTIONS.

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My invention refers to a device for the mixing of liquids in any proportion of quantity desired. Hitherto it has been necessary to measure off the required quantity of each component of a mixture separately in turn, to fill the measured-off quantities into a common recipient, and therein to mix the component ingredients together to as homogeneous a mass as possible by means of mechanical stirring devices. This process necessitated a previous preparation, and therefore a storing of the mixtures until the time came for their being used, and while they were being stored it was impossible to prevent unmixing taking place owing to the ingredients settling down according to their respective specific weight. By means of the invention the mixtures are not prepared until just before they are drawn off, and the mixing is done by utilizing the drawing-off movement, so that not only do all mechanical measuring and stirring devices become unnecessary, but at the moment of drawing off and thus at the moment of use there is produced an absolutely homogeneous mixture. The drawing off and the mixing are thus accomplished simultaneously. The invention consists in the fact, that the rate of the flow of the component ingredients through the adductor pipes is controlled and determined by devices which vary the cross-section of the pipes according to the quantity proportions required, and that the flow of the ingredients through these devices takes place simultaneously, and that the ingredients, measured off in this way according to their rate of flow, are brought together into a common pipe. Even if these quantities of liquids, thus measured off in proportion of their rate of flow, were merely then passed on alongside one another, the respective cross-section would ensure their being present in the required mixing proportion. As however the separate particles of a quantity of liquid never move in a straight line, there is set up already by the bringing together of the ingredients of the mixture an intimate commingling action, which may be intensified by means of devices for facilitating the mixing as for instance by means of spiral passage-walls, baffle plates, rotating mixing-worms or pumps and the like. Exactness in the measuring off of each ingredient of the liquid mixture requires that the pressure which produces the flow-movement shall remain equal. In order to render the degree of pressure independent of the position of the

surface of the liquid in the containing vessel, the containing vessel has according to my invention to be made in the form of a Mariotte jar, in which the pressure-equalizing dip-pipes can be made adjustable to vary the effective pressure. To obviate any suction-effect arising behind the device which regulates the variation in section in the run-off pipe of the containing vessel such as might impair the degree of accuracy of the measuring-off, my invention provides for the interior of said device communicating with the outside air. Further, in order to prevent the liquid, when the recipient is being filled, from entering the dip-pipe which equalizes the pressure on the Mariotte principle which entrance would at the beginning cause the flow-movement to be produced by a pressure higher for the weight of that quantity of liquid, my invention provides at the lower end of the said dip-pipe a floating valve or the like that prevents the liquid from entering into said dip-pipe but allows air or gas to pass through said dip-pipe in the opposite direction. Moreover, the lower end of the dip-pipe is provided with devices for distributing the air or gases used to equalize the pressure. In order to enable the container built as a Mariotte's jar to be refilled at any time with liquid, there is affixed at the highest point of same a check valve and an overflow pipe closed by a siphon. According to my invention the supply pipe for fresh liquid is provided with a cut-off device serving to alter gradually the passage-section, in like manner to the let-off pipe, so that the quantity of fresh liquid can be adjusted to remain closely behind the quantity flowing-off, with a view to an uninterrupted functioning of the drawing-off of the measured liquid. Thus, the liquid flowing in cannot in any way affect the height of liquid producing the flow-pressure in the measuring-off pipe. Furthermore the cut-off device of the supply pipe can be coupled to work so automatically in connection with the let-out pipe, that whenever any of the liquid mixture is drawn off fresh liquid starts again to flow automatically into the recipients for the component ingredients.

In order to more fully explain my invention, I will now describe, by way of example, an embodiment of the same as illustrated in the accompanying drawing in which:

Fig. 1 is an elevation partly shown in section.

Fig. 2 shows in section the regulators for